

REPORT

MARCH 2007

ARCEP Mission in the United States

October 11 to 13, 2006



Paul Champsaur
ARCEP Chairman

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Head of International Bureau

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The quality of the speeches and discussions, the diversity of the contacts made and the very warm atmosphere made this mission very pleasant and a resounding success.

We thank the economic and scientific departments of the French Embassy in Washington as well as the economic department of the American Embassy in Paris for their support.

This report summarizes the information drawn from the American experience in multimedia services which are currently available on all communications platforms. Whenever possible, it offers a comparison with France.

Summary: The information collected during the visit of Chairman Champsaur to the United States shows an evolution comparable to that seen on European and French markets, in that a growing number of multimedia services are being made available on all communications platforms.

Multimedia services are dominated in the United States by cable which, in hopes of avoiding competition from satellite on pay television, took advantage of a favorable regulatory situation and began competing early on with telecoms operators. Telecoms operators launched a counter-offensive by investing in fiber optics.

In France, the situation is different because cable has been historically weak and competition is seen almost exclusively between telecom operators.

The two countries are similar in their regulation of multimedia services, particularly in the area of frequencies which require harmonization. However, frequency regulation is organized more rationally in the United States than in France.

Paul Champsaur, Chairman of *Autorité de Régulation des Télécommunications Electroniques* (ARCEP), accompanied by Joël Voisin-Ratelle, Head of International Bureau, traveled to Washington DC from October 11 to 13, 2006 to discuss the issues and evolution of regulation of electronic communications in the U.S..

The visit confirmed the growing importance of content in the structure of the telecommunications market in the U.S.

This report summarizes information received on the U.S. experience while adding elements of comparison with France.

I- THE TELEPHONE IN THE UNITED STATES AND CHANGES IN USES

Household Equipment and Accessibility

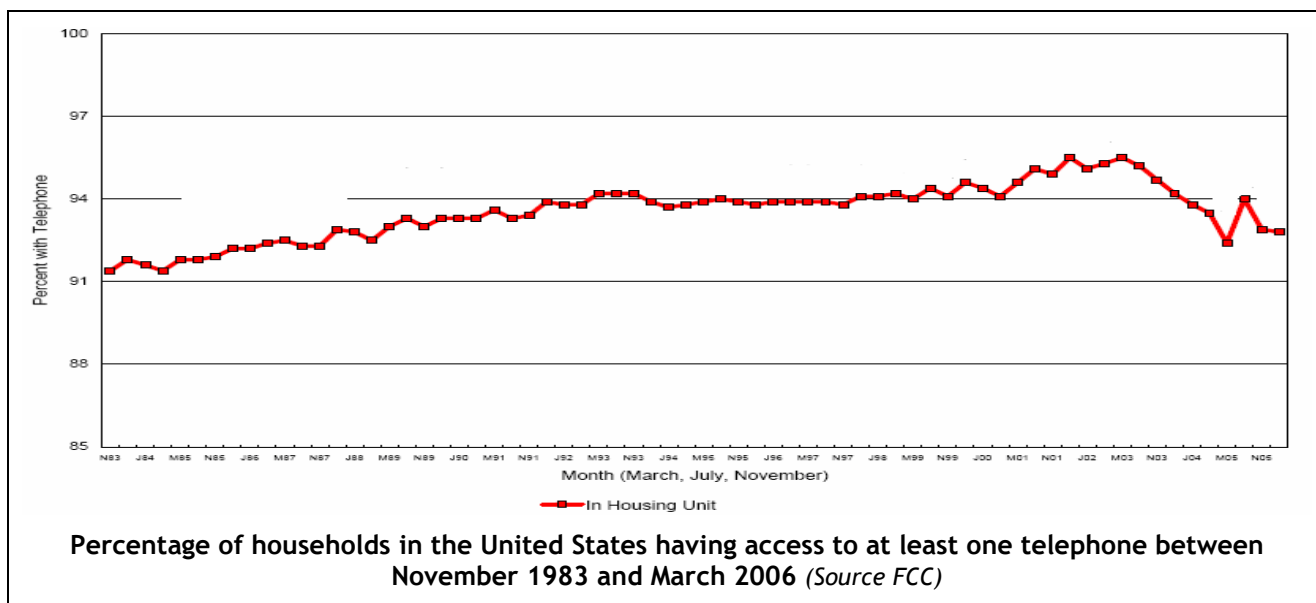
Telephone
Subscribership
Report. October
2006
http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-268003A1.pdf

The [Federal Communications Commission \(FCC\)](#) estimates that 107.2 million U.S. households have at least one connection to residential telephone service, whether wireline or mobile (for a total of 115.5 million households estimated by the FCC in March 2006).

The percentage of U.S. households having at least one telephone in the home rose from 91% in November 1983 to 92.8% in March 2006.

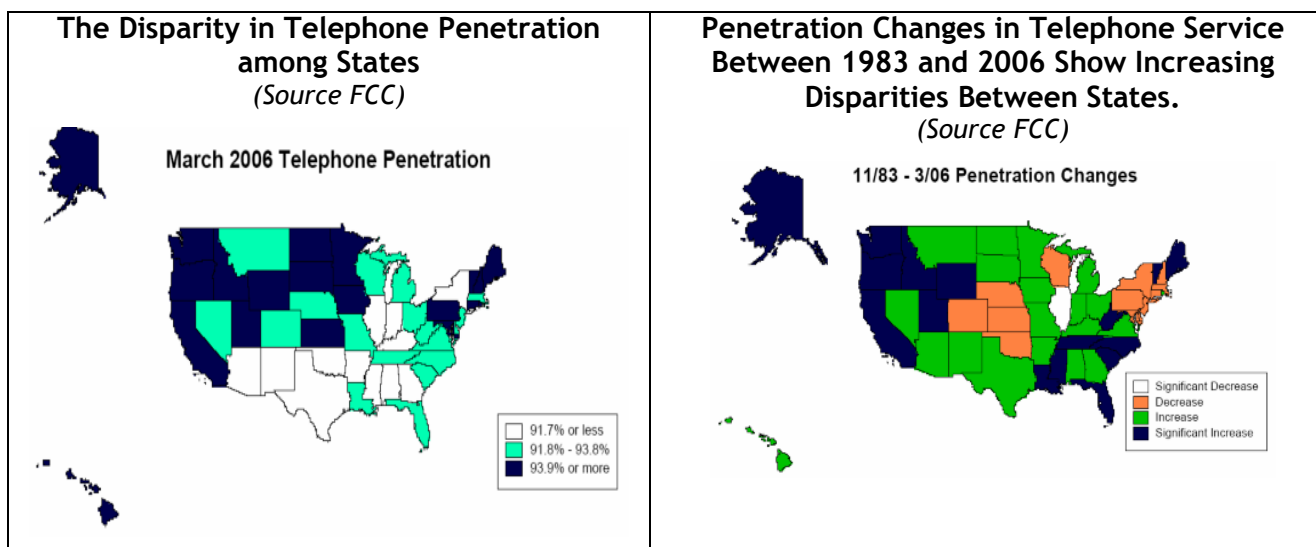
According to the FCC the percentage of adults (including handicapped persons) having access to a telephone is 93.7%.

The market seems saturated, although there remain 8.4 million unconnected households (or 7.2% of all households).



A disparity of services offered, geographically and depending on revenue

The penetration rate of telephone service varies depending on the state. At end March 2006, it was highest in Minnesota with 97.4%, whereas it was just 86.7% in New Mexico. According to the FCC, a number of states (*in orange on the maps below*) saw the penetration rate of telephone service slow between 1983 and 2006. On the other hand, the west coast has seen strong growth in telephone services.



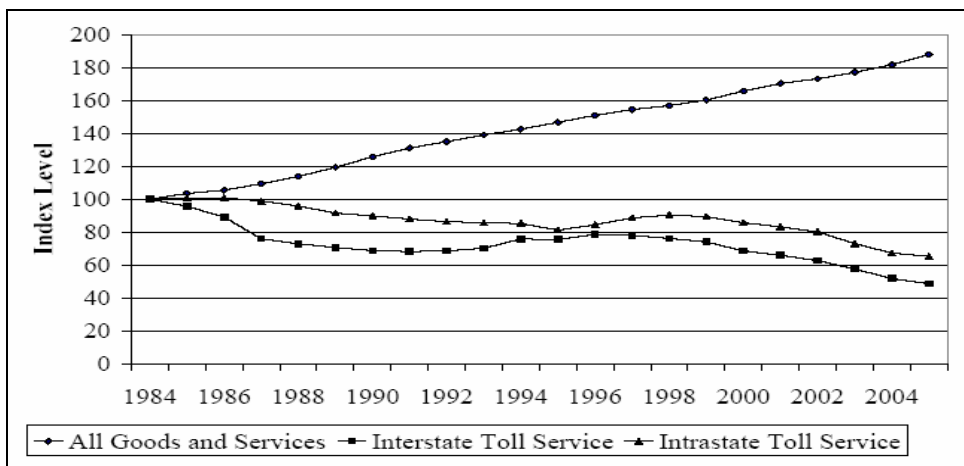
Penetration is a function of income. According to the FCC, penetration is 97% for households with an income greater than \$75 000 per year, and 90% for households having an income of less than \$20 000.

In France, according to INSEE, 84% of households had a wireline telephone at end 1983, and 99% had either a wireline or mobile telephone at end 2005, of which 24% had only a wireline telephone, 12% only a mobile telephone, and 63% both a wireline and a mobile. The maximum penetration rate of households for wireline telephones was reached in the mid 1990s, with 95% of households equipped. After that, wireline declined to the current rate of 86%, certain wireline connections being replaced by mobile phones.

The Change in Wireline Telephone Prices

According to the FCC, since the break-up of AT&T in 1984, the price of wireline calls has fallen by about 40% for intrastate toll calls and by 50% for interstate toll calls. During the same period, the goods and services price index almost doubled.

The change in the consumer price index since 1984 has seen consumers benefit in terms of telephone services. (Source FCC)



This change is corroborated by the decline in telecoms operators' long-distance revenues per minute, which were divided by 2.5 in the United States between 1992 and 2004, falling from 15 cents per minute in 1992 to 6 cents per minute in 2004.

Average revenue per minute from long-distance calls has declined sharply. (Source FCC)

Year	Revenue per Minute
1992	\$0.15
1993	0.15
1994	0.14
1995	0.12
1996	0.12
1997	0.11
1998	0.11
1999	0.11
2000	0.09
2001	0.08
2002	0.07
2003	0.07
2004	0.06

Source: Industry Analysis and Technology Division of the Wireline Competition Bureau, *Telecommunications Industry Revenue* (March 31, 2006)

The Importance Gained by Mobile Communication Systems

The telecommunications market in the United States is characterized by a decline in revenues per wireline services, offset by an increase in revenues for mobile.

The average monthly change in telecommunications spending per household depends on the growth of mobile. (Source FCC)

REFERENCE BOOK OF RATE, PRICE INDICES AND HOUSEHOLDS EXPENDITURES FOR TELEPHONE SERVICE FCC 2006
http://hraunfoss.fcc.gov/edocs_public/attachmactch/DOC-266857A1.pdf

	Local Exchange	Long Distance Carriers	Wireless Carriers	Total Expenditures
1995	\$30	\$21	\$7	\$51
1996	30	21	9	60
1997	32	25	11	68
1998	33	23	14	70
1999	34	21	17	72
2000	35	18	23	76
2001	36	15	29	80
2002	36	12	35	83
2003	37	10	41	88
2004	36	9	47	92
2005	36	8	53	97

Source: Calculated by Industry Analysis and Technology Division staff using survey data from TNS Telecoms *ReQuest Market Monitor*™, Bill Harvesting®.

The FCC estimates average monthly consumption of telecom services per household at \$97.00, of which \$53.00 is for mobile.

Taking the annual amount of telecommunications spending and dividing it by the number of subscribers, the FCC gets the **average monthly spending on telephone consumption which has practically doubled in 10 years, rising from \$51.00 per month in 1995 to \$97.00 per month in 2005.** The amount for local calls increased slightly from \$30.00 per month in 1995 to \$36.00 in 2005. On the other hand, the monthly spend for long-distance calls fell from \$21.00 in 1995 to \$8.00 in 2005. This market change benefited mobile which, during the same period, saw monthly revenues increase from \$7.00 to \$53.00.

Average Monthly Spending per Household in France (in euros including VAT)

Scope: all households in Metropolitan France, equipped or not

	Wireline telephony	Mobile telephony	Total
1998 (1)	36	9	45
2004 (2)	32	37	69
2005 (2)	31	46	77
2006 (2)	29	52	81

(1) Source: Médiamétrie

(2) Source: ARCEP estimate based on DataNova data (spending) and INSEE (household structure)

As in the United States, the rise in the average spend per household in France since the late 1990s is caused by the strong growth in mobile telephony expenditures, and the decrease in wireline telephony expenditures.

9/29/2006 REPORT (FCC 06-142)

[Eleventh Annual Report to Congress on the State of Competition in the Commercial Mobile Radio Services \(CMRS\) Industry](#)

Following this change, the U.S. telecommunications sector saw consolidation with the **integration of wireline and mobile players.** This was the case of the leading mobile telephony operator in the United States, **Cingular Wireless LLC**, a joint venture between the wireline operators SBC (now AT&T) and Bell South. At end March 2006, **Cingular** had over **55 million subscribers.** This alliance has been further strengthened since December 29, 2006, when the FCC approved the merger between the operators AT&T Inc. and Bell South Corporation.

Verizon Wireless, a joint venture between Verizon Communications and Vodafone, had **53 million subscribers** at March 31, 2006.

Sprint Nextel, competitor of the incumbents, including for wireline services, is developing a sales strategy based on:

- selling off shares in local operators which it holds on the wireline residential market to concentrate on business customers
- developing MVNO agreements, particularly in the area of sports
- a television on mobile service using WIMAX standards
- developing a Quadruple Play service with the top four cable operators

Sprint had **48.9 million subscribers** at end March 2006, of which 39.9 million direct subscribers, 3.5 million prepaid subscribers through its *Boost Mobile* subsidiary and 5.5 million through agreements with virtual operators and reselling.

Only T-Mobile remains a pure mobile operator in the United States with **23.3 million subscribers** at end June 2006.

II- FROM BROADBAND TO MULTIMEDIA

Broadband in the United States: Differences with the French Market

<http://www.fcc.gov/wcb/iatd/stats.html>

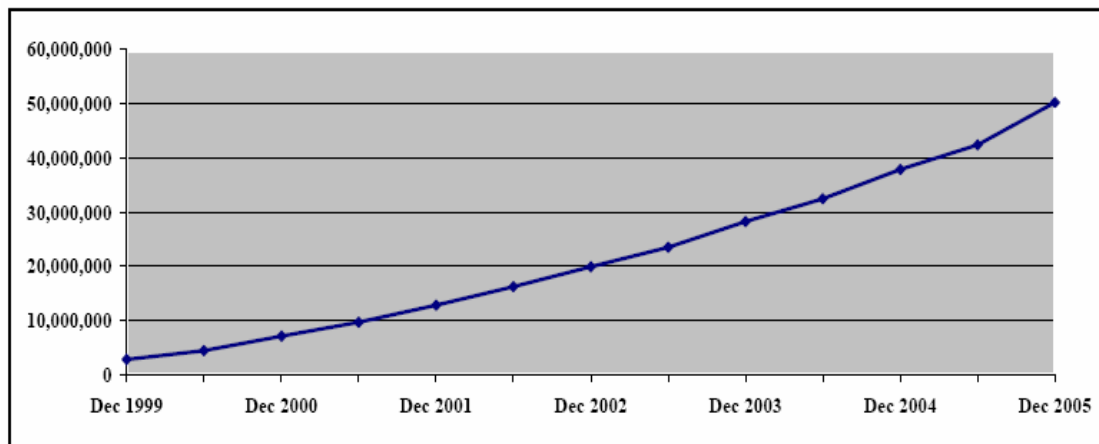
The high speed report published by the FCC in July 2006:

<http://www.fcc.gov/wcb/iatd/comp.html>

According to the FCC report "*High-speed Services for Internet Access: Status as of December 31, 2005, July 2006*", the number of lines connected to broadband rose from just a few thousand in 1999 to over 50 million in late 2005.

The FCC measures broadband data twice each year. Figures seem to indicate an acceleration in the trend during the second half of 2005, when figures rose 18%, from 42.4 million to 50.2 million lines between June and December 2005, compared with 12% in the first half year 2005, for 33% growth for the entire year, representing 12.3 million additional lines.

Growth in the Total Number of High-Speed Lines in the United States since 1999



Source FCC

Like their U.S. counterparts, telecoms operators in France have tried to develop a competitive Triple Play offer using DSL technologies. However, three elements distinguish the U.S. market from the French:

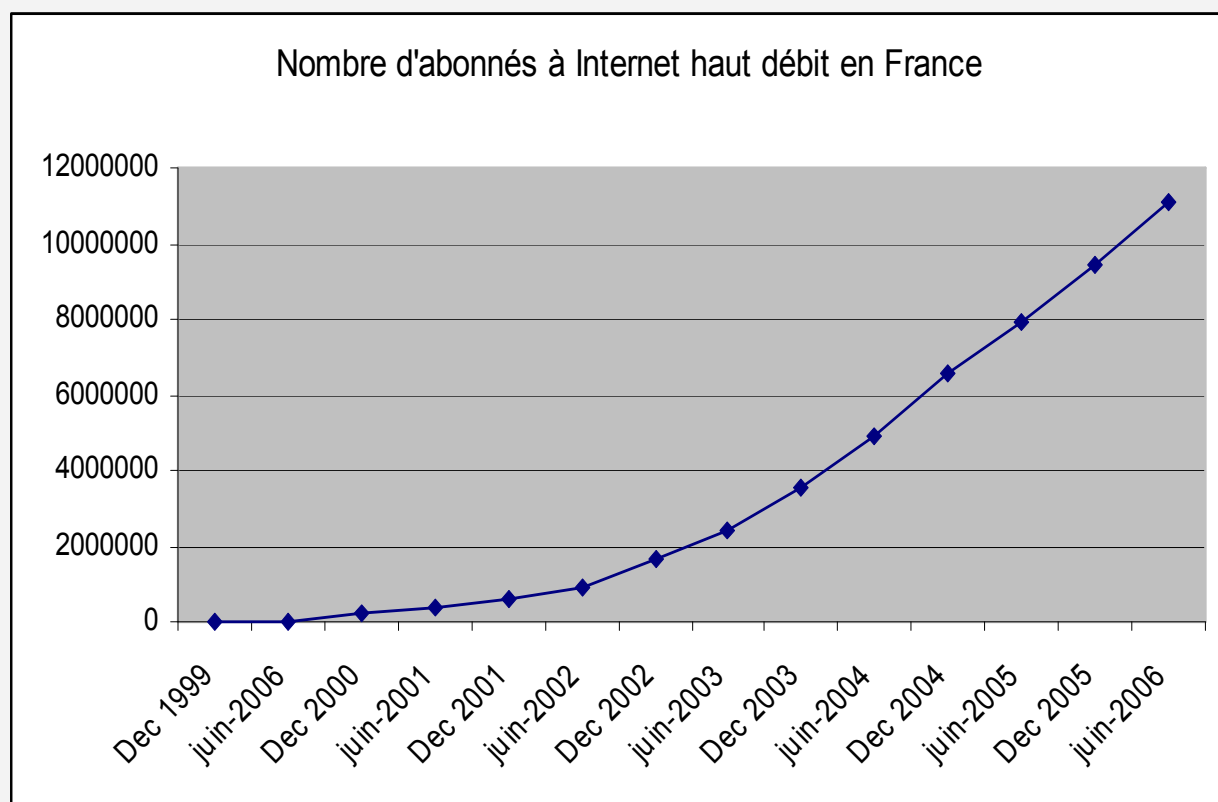
- the first is the **definition of broadband, which is less strict in the United States than in France**: the FCC's definition of broadband includes subscriber services transmitted at speeds of over 200 Kbps in at least one direction. In France and Europe, high speed or broadband refer to Internet access capacities which exceed those of analogue access via modem or that of ISDN digital access, at least equal to 512 Kbps as is the case currently on ADSL. This means that 3G is not included in broadband statistics in France, whereas 3G services are included in the U.S. (the number of American subscriptions to 3G mobile telephony was 3.1 million in late 2005). 3G might be considered broadband in France once new standards like HSDPA (*High-Speed Downlink Packet Access*) are implemented.
- the second element is the **significant place occupied by cable operators on the broadband market in the United States**, whereas in France, competition is primarily between telecoms operators.

- the third element is the **regulation of unbundling** which has been successful in France and which failed in the United States because of:
 - the complexity of regulation on unbundled network elements (*UNE P*)
 - the condition of legacy telecommunications networks, which is poorer in the United States than in France
 - the local loop, which is long in the United States compared to France

The legal, technical and financial problems encountered in local loop unbundling have eliminated almost all telco new entrants, leaving incumbents in competition with cable operators, who operate in a less regulated environment.

This market situation combined with a 2005 decision of the U.S. Supreme Court (“Brand-X”) classifying broadband Internet access over cable as an “information service” led the FCC to reduce regulation on unbundling in telecommunications granting the **status of information services to certain retail broadband services over ADSL and fiber optics, which are less regulated than telecommunications services.** It did the same for broadband services transported on power networks in its decision of August 7, 2006. One of the primary objectives of the FCC is to create regulatory parity in the treatment of broadband services on different platforms (cable, telco, powerline).

In France, the number of subscriptions to high-speed Internet has been growing strongly since early 2003. Since mid 2005, growth is 20% per half year, down slightly over the first half of 2006 (+17%). This is almost exclusively DSL access: of the 11 million access lines in mid 2006, 10.4 million were DSL lines and 0.6 million were access via cable modem.

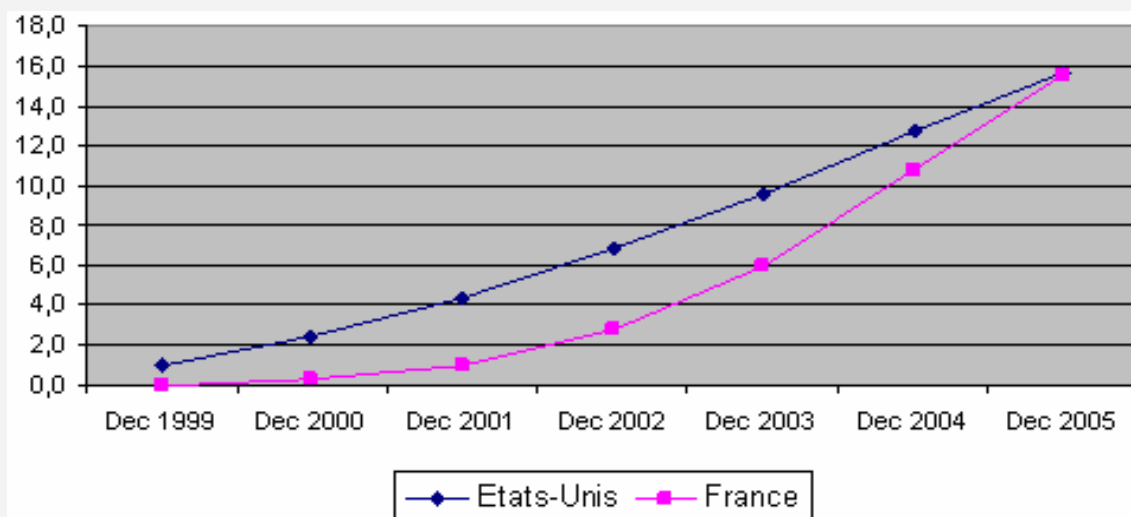


Source ARCEP

Number of Broadband Internet Subscribers in France

Growth in the Number of Broadband Internet Lines per 100 Inhabitants

Excluding Wireless Broadband (Excluding Satellite and Mobile) (United States France)



Source ARCEP

Broadband Competition from Cable on high speed

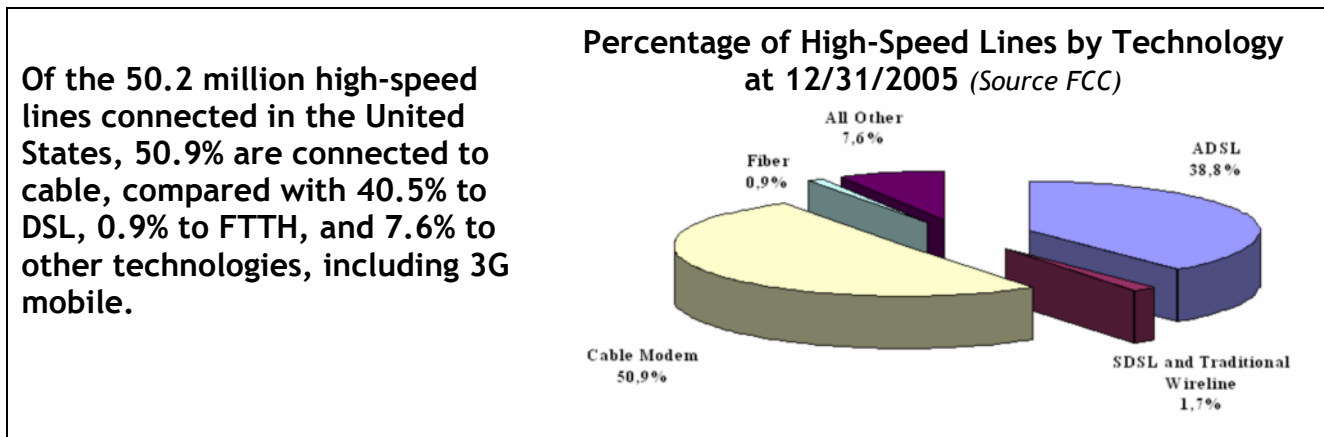
Broadband in the United States:
25.5 million on cable
19.5 million on ADSL

More than half of broadband lines (25.5 million out of 50.2 million) in the U.S. were connected via cable modem at end 2005, compared with 19.5 million connections via DSL.

Broadband cable continue to lead in the United States, although for the first time since 1999, the FCC saw stronger growth in 2005 for DSL lines than for lines connected to cable modems, with 5.7 million additional lines for DSL compared with 4.2 million additional lines for cable.

The Number of High-Speed Lines (over 200Kbps) in the United States by Technology: a Change which Puts Telecom Platforms in Second Place (Source FCC)

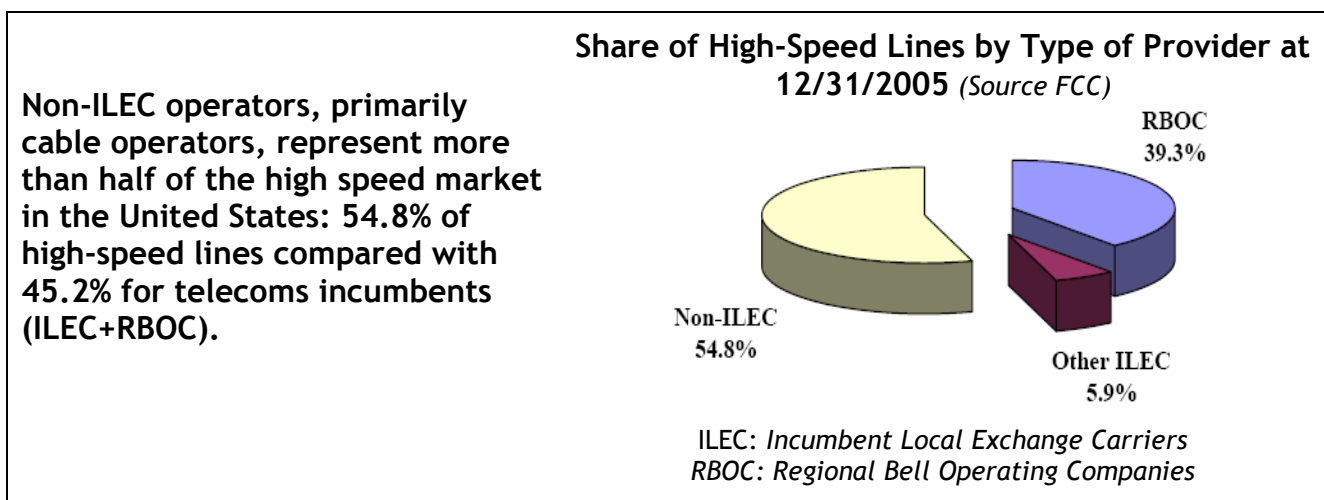
Technology ²	1999	2000	2001	2002	2003	2004	2005	
	Dec	Dec	Dec	Dec	Dec	Dec	Jun	Dec
ADSL	369 792	1 977 101	3 947 808	6 471 716	9 509 442	13 817 280	16 316 309	19 514 318
SDSL and Traditional Wireline	-	1 021 291	1 078 597	1 216 208	1 305 070	1 468 566	898 468	876 286
SDSL	-	-	-	-	-	-	411 731	366 376
Traditional Wireline	609 909	-	-	-	-	-	486 737	509 910
Cable Modem	1 411 977	3 582 874	7 059 598	11 369 087	16 446 322	21 357 400	23 936 536	25 583 233
Fiber ³	312 204	376 203	494 199	548 471	602 197	697 779	315 651	448 196
Satellite and Wireless	50 404	112 405	212 610	276 067	367 118	549 621	965 068	3 809 247
Satellite	-	-	-	-	-	-	376 837	426 928
Fixed Wireless	-	-	-	-	-	-	208 695	256 538
Mobile Wireless	-	-	-	-	-	-	379 536	3 125 781
Power Line and Other	-	-	-	-	-	-	4 872	5 859
Total Lines	2 754 286	7 069 874	12 792 812	19 881 549	28 230 149	37 890 646	42 436 904	50 237 139



High-speed DSL in the United States is distributed on telecoms networks which are over 80% dominated by major incumbents such as the RBOCs (*Regional Bell Operating Companies*). Unlike France, the U.S. has hundreds of small rural telephone companies that are not part of any large group.

High-Speed Lines by Type of Provider at 12/31/2005: Telecoms Operators Bet on Fiber Optics (Source FCC)

Technology	Lines				Percent of Lines		
	RBOC	Other ILEC	Non-ILEC	Total	RBOC	Other ILEC	Non-ILEC
ADSL	16,050,135	2,748,818	715,365	19,514,318	82.2 %	14.1 %	3.7 %
SDSL	*	*	225,712	366,376	*	*	61.6
Traditional Wireline	268,618	13,398	227,894	509,910	52.7	2.6	44.7
Cable Modem	*	*	25,522,460	25,583,233	*	*	99.8
Fiber	*	*	110,944	448,196	*	*	24.8
Satellite	0	0	426,928	426,928	0.0	0.0	100.0
Fixed Wireless	*	*	246,455	256,538	*	*	96.1
Mobile Wireless	*	*	74,847	3,125,781	*	*	2.4
Power Line and Other	0	804	5,055	5,859	0.0	13.7	86.3
Total Lines	19,738,101	2,943,378	27,555,660	50,237,139	39.3 %	5.9 %	54.9 %



The Counter-Offensive of Broadband Telcos and Their Incursion into Media

Telecoms operators, principally the RBOCs, have had to adopt a new investment strategy focusing on fiber and mobile.

Telecoms operators have had to modernize their wireline networks, introducing new technologies to develop new services and fight competition from cable, still number one in broadband penetration. Telcos are focusing on multimedia services, by deploying optical fibers to win back market share and benefit from the growth observed for VoD and HDTV.

Verizon's development strategy, for example, is based on deploying a FTTH BPON network (*Broadband Passive Optical Network*) to compete with cable operators on multimedia services. The operator had 6 million customers connected via fiber optics at end 2006. Verizon plans to invest \$18 billion between 2004 and 2010 and expects to have installed 18 million FiOS (*Fiber Optic Services*) terminals by end 2010.

High speed for Internet access July 2006
http://hraunfoss.fcc.gov/edocs_public/attachm/DOC-266596A1.pdf

Verizon has received cable franchises from many local governments and has begun offering its multi-channel video service under the *FiOS* brand in partnership with Qualcomm, at the following prices:

- \$34.95 for up to 5 mbps downstream and 2 mbps upstream
- \$49.95 for 15 mbps downstream and 2 mbps upstream
- \$179.95 for 30 mbps downstream and 5 mbps upstream

AT&T (formerly SBC) and Bell South have invested in a mixed architecture (FTTN-VDSL2 as a primary solution and Greenfield FTTH). AT&T is deploying an IP protocol broadband network called "Project Lightspeed". SBC is investing \$4 billion over 2 years to deploy an FTTN network (*fiber to the node*) offering Quadruple Play (wireline and mobile voice, Internet and TV) in 13 states by 2007.

Qwest and small local operators are offering video services using VDSL and ADSL technologies.

A number of operators are offering video on mobile services. Verizon Wireless has been developing its V CAST service since February 2005.

This economic environment has made it difficult for the FCC to apply the Telecommunications Act 96, which is still based on technological distinctions between cable and telecommunications networks.

The problems are further complicated by difficult questions of jurisdiction of the federal regulator (FCC) versus the state regulators (PUCs) versus the local municipalities (franchising authorities).

This explains in part the difficulties in telecommunications regulation in the United States. Many of the FCC's measures have led to a multiplication of lawsuits, particularly on unbundling, which was abandoned, in part because of strong competition from cable.

Although relaxing some unbundling rules, the FCC still imposes strict rules on sharing ducts, based on a price formula that is lower than LRIC. The availability of ducts for competitive operators has also influenced the FCC's policy of not requiring ILECs to provide unbundled access to new fiber.

To broaden their portfolio of services, telecoms operators are proposing service bundles including resale of video services of satellite broadcasters.

Commercial alliances between telecoms operators and satellite broadcasters

Verizon and Bell South have joined with DirecTV and AT&T with EchoStar. These agreements permit:

- telecoms operators to provide a digital television program service pending rollout of fiber optic solutions
- satellite broadcasters to win market share away from cable operators

The telecoms operators provide a single invoice and customer service platform. Telcos are developing a more advanced technical alliance with satellite broadcasters, often by proposing combined television/Internet access decoders.

III- TV IN THE UNITED STATES

TV Access Modes

According to Nielsen Media Research **TV usage in American households which rose on average to over 8 hours per day** between September 2004 and September 2005, or 3% more than the previous period and 10% more than 10 years earlier. In the 1950s, this figure was estimated at about 4 hours. By comparison, Médiamétrie estimates average TV time for a French household at 5 hours and 39 minutes in 2006.

MB Docket No. 05-255
Annual Assessment of the
Status of Competition in
the Market for the
Delivery of Video
Programming
FCC Media Bureau
Releases 12th Annual
Video Competition
Report to Congress
http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-263763A1.doc

According to estimates by the [National Cable & Telecommunications Association](#) (NCTA) and the FCC, a total of 110 million American households were connected to TV in June 2005, of which about 60% via cable, over 25% via satellite and just under 15% via rooftop antenna.

Close to 86%, or 94.2 million households connected to TV, buy a pay television service from a MVPD (*Multichannel Video Programming Distributor*). MVPD are primarily:

- cable operators or community antenna television (CATV) providers like Comcast or Time-Warner
- direct broadcast satellite (DBS) providers like DirecTV or EchoStar

In measuring the number of multimedia service providers, the FCC recently included local exchange carriers (LEC) like AT&T and Verizon among the MVPD.

Two satellite operators are among the top four MVPD.

In 2005, the top four MVPD (Comcast Cable communications, DirecTV, EchoStar Communications Corporation and Time Warner Cable) served 63% of the market of television subscribers, compared with 58% in 2004.

Comcast is the largest cable operator with close to 22 million subscribers in March 2006, although two DBS (direct broadcast satellite) providers, DirecTV and EchoStar, now occupy second and third place, each with over 13 million subscribers.

In France, according to INSEE, 62% of households have access to television via rooftop antenna, one quarter to television via satellite (or 6.5 million households), and 12% via cable (or 3.8 million). In all, almost all households had a television in October 2005. Since that date, television on ADSL has also spread and now reaches close to 2 million households; according to Médiamétrie, digital terrestrial television was received by 2.5 million households in the third quarter 2006.

Cable Dominates Pay TV

The cable platform plays a key role in the structure of the U.S. pay television and broadband market. Cable operators, called MSO (Multiple System Operators), manage several networks. Cable networks are authorized through licenses called “franchises” granted by local authorities. According to the NCTA, cable represented 58.9% of households connected to TV in September 2006.

Cable dominates the Pay TV market .

Cable Statistics
<http://www.ncta.com/ContentView.aspx?contentId=54>
 (Source NCTA)

Cable: number of subscribers	
Basic Cable Subscribers (September 2006)	65,600,000
Cable Penetration of TV Households (September 2006)	58.9%
Premium Cable Units (June 2006)	50,400,000
Cable: sales	
Annual Cable Revenue (residential) (2006 estimate) ¹	\$69.5 billion
Total Advertising Revenue (2006 estimate) ¹	\$24.6 billion
Annual Franchise Fees Paid by Cable Industry (2005)	\$2.4 billion

The development of cable in the United States was stimulated by the launch of the first satellite pay TV network in 1972 to distribute programs in rural areas not reached by cable. Cable then found itself in competition with satellite to distribute channels to the entire country with the launch of **Satcom1** by RCA in 1975, **DirecTV** in **1994** and **EchoStar** in **1996**, with the latter two broadcasting more and more channels. The emergence of new technologies on satellite such as DBS exacerbated competition.

Cable networks are governed by a separate “title” in the Telecommunications Act of 1996. A Supreme Court decision of 2005 held that broadband Internet access via cable was not a “telecommunications service” but rather an “information service” subject to no interconnection or access rules. This decision prompted the FCC to apply lighter regulation to broadband services generally.

The revenue of cable operators is generated in part from consumer subscriptions, and in part from advertising. The share of revenue from advertising has risen from 13.8% in 1992 to 27% in 2006, that from subscribers has fallen from 86% to 73%.

Cable saw 10.8% annual growth in this revenue at end 2005, generated primarily by advanced services such as high-speed Internet.

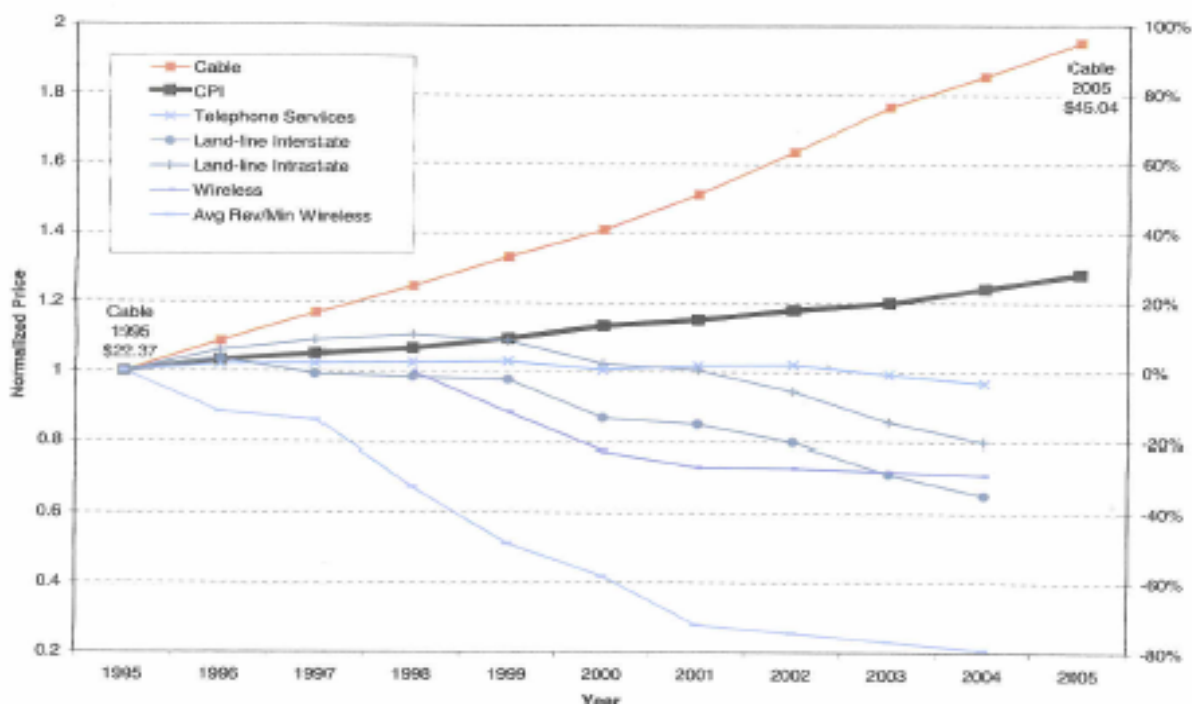
The Change in Cable Revenue From Consumers and Advertising in \$million

Year	Total Subscriber Revenue	Total Advertising Revenue
2006	\$69,463	\$24,611
2005	\$63,085	\$21,301
2004	\$57,600	\$18,816
2003	\$51,300	\$16,805
2002	\$49,427	\$14,896
2001	\$43,518	\$14,203
2000	\$40,855	\$14,294
1999	\$36,919	\$11,920
1998	\$33,503	\$9,730
1997	\$30,493	\$8,087
1996	\$27,706	\$6,799
1995	\$25,421	\$5,628
1994	\$23,134	\$4,659
1993	\$22,843	\$3,971
1992	\$21,079	\$3,381

(Source NCTA)

Market prospects remain favorable for cable operators and allow them to sell high added-value packages with a rise in prices as a consequence. By measuring the change in the price index of various communication services, the FCC shows that the price of cable has doubled in 10 years.

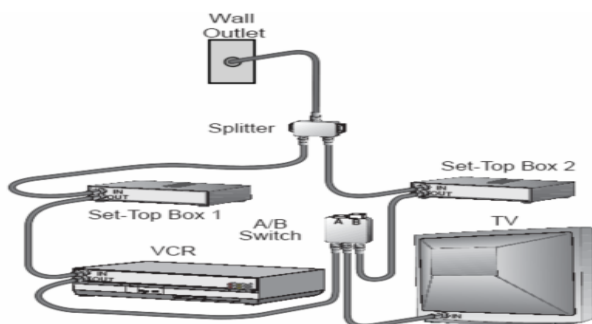
Change in the Price Index of Communications Services



Source FCC

Cable has successfully competed with satellite (DBS).

In doubling its revenue generated primarily by pay television in the period between the Telecommunications Act of 1996 and 2005, cable operators were able to modernize networks while taking on competition from satellite. The result of this was new television services for consumers.



Sample cable connection Source Comcast
<http://www.nielsenmedia.com/nc/portal/site/Public/#>

In order to remain competitive, the cable operators offer Triple Play bundles of services, with DBS making advances at the same time especially in sports programming, and including new services like digital video recorders (DVR).

The unprecedented penetration of digital television at 09/30/2006: 76% of cable subscribers pay to receive digital TV, 43.3% high-speed Internet and 24.3% telephone

Digital Video	76.0% of basic subscribers
High-Speed Data	43.3% of homes passed
Cable Phone	24.3% of homes passed

Source: Cablevision's 3Q06 Earnings Release

Cable has Invested \$100 billion in 10 Years to Modernize Network Infrastructure

U.S. cable operators were able to respond to competition from satellite and initiated new investment strategies by investing \$65 billion between 1996 and 2002 and \$35 billion between 2002 and 2005 to modernize and build hybrid distribution networks including both optical fiber and coaxial cables.

Cable operators invest in networks and terminals

To set themselves apart from DBS (Direct Broadcast Satellite) and telcos, cable operators upgraded their networks and gradually increased their coverage.

Their strategic investment followed a dual objective:

- first, to invest in new network equipment to develop new applications on other platforms like Internet and digital radio
- then, to increase investment in terminal equipment to increase capacity in the number of channels

Investment Spending of Major Cable Operators (in millions)						
Operators	2004			2005		
	Total	Of which Upgrades	Of which Terminal Equipment	Total Jan.-June	Of which Upgrades	Of which Terminal Equipment
Comcast	\$3 600	\$902	\$1 500	\$1 800	\$167	\$932
Time Warner	\$1 700	\$139	\$719	\$899	\$69	\$431
Cox	\$1 400	\$87	\$528	\$661	N/A	N/A
Charter	\$924	\$49	\$451	\$542	\$22	\$228
Cablevision	\$574	\$12	\$429	\$316	\$3	\$227

Source FCC: MB Docket No. 05-255 - Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming - April 2006 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-11A1.doc

This investment strategy has continued since 2004, with an increase in investments on terminal equipment and a reduction in those for network modernization. For example, during the first half of 2005, Comcast spent 51% of its investments on facilitating access to terminal equipment to support new services compared with 9% for upgrading the network, whereas for all of 2004, the proportions had been 41% for developing terminal equipment and 21% for upgrades.

In addition to broadcasting many channels, the new high-speed cable networks can provide telephone service, broadband Internet access, high-definition television (HDTV) and advanced video services like VoD, all through a single connection to the home.

Cable operators introduce new technologies: the CableCard replaces the set-top box.

Cable operators have other technological advantages like digital cable ready television sets (DCR) which allow direct hookup to the system via a CableCard, without the need for a set-top box. The number of CableCards grew from 5 000 to 100 000 in one year between December 2004 and December 2005. Last, the introduction of VoIP brought cable operators an additional 5 million subscribers in 2006.

This context has lead the FCC to consider that effective competition exists between the telcos, the cable operators and the satellite operators in the United States, reinforced by competition from mobile operators. The FCC has therefore set a policy that favors competition between platforms, while also ensuring that certain elements of the legacy telecom networks (copper loop, ducts, backhaul) are available to competitors at reasonable prices.

Internet and Net neutrality

At the same time, a tense situation has been created on the communications market between infrastructure operators and portals like Google and Yahoo..

The telcos want to be able to discriminate in how bandwidth is allocated. This approach is supported by some RBOCs like Bell South and SBC. It has triggered a debate on the neutrality of Internet which puts infrastructure operators and content providers head to head. The debate concerns not only access to high-speed networks, but also access to content so that it can be remunerated at its fair value.

The concept of Internet neutrality is highly contentious in the U.S. Telecoms operators, supported by equipment manufacturers (Alcatel, Cisco, etc.) are globally in favor of putting in place differentiated service levels. Bell South was the first operator to

demand better remuneration for access provided to Internet Access Providers (IAPs) to help Bell South invest in improving Internet connectivity.

SBC considers the FCC too vague on the concept of Internet neutrality, and wants new regulation on access at different prices based on the quality and speed desired. The goal would be to rebalance the market in terms of Internet access, on the basis that service quality comes at a cost.

At a hearing of the Senate Commission on commerce, science and transportation, AT&T and Verizon (although the latter is against legislation on content remuneration) expressed their desire to charge service providers for guaranteed service quality for their multimedia content on the Internet.

Internet service providers (ISP) like Google and Yahoo are opposed. Google's representatives consider that, in essence, the Internet model favors users who must have no barriers to access content and services of their choice.

In order to try to limit the scope of new Congressional initiatives in the direction of telecoms operators, content providers like Apple Computer are seeking to redefine the terms of their contracts with operators by immediately agreeing to double the price of the transaction (10 cents instead of 5 cents per download), in exchange for receiving absolute priority in the bandwidth needed for quality downstream transport for video iTunes products.

The FCC issued a statement on net neutrality in August 2005. According to the FCC, consumers should have:

- **access to the legal content of their choice**
- **access to the legal services and applications of their choice**
- **connection of the terminals of their choice**
- **competition between access, service and application providers**

The net neutrality debate shows how important content has become to infrastructure operators. Verizon, AT&T and Comcast reserve significant bandwidth on their networks in order to offer their own video services, and don't seem prepared to grant the same bandwidth for the applications of other service providers.

Congress is divided on the subject and portals like Google and Yahoo, supported by the Democrats, want to limit the ability of dominant telecoms operators to discriminate. At the same time, these same portals have contractual links with dominant operators guaranteeing them in some cases access to bandwidth. **In reality, all players consider that content is a key vector for financing new network investment.**

IV- SPECTRUM MANAGEMENT IN THE UNITED STATES

Total Switch from Analog to Digital in the United States on 02/17/2009

In 1997, Congress decided that the digital switch-off should occur on Dec. 31, 2006, but included a condition that 85% of households be equipped by that time to receive digital signals. Realizing that the 85% condition could cause the analog switch-off to be put off indefinitely,

Congress amended the law on Feb. 1, 2006, setting February 17, 2009 as the absolute date for the complete switch-off of analog broadcasting. Congress added to these measures a specific fund initially of \$1 billion administered by the [National Telecommunications and Information Administration](#) (NTIA) to finance digital decoders for non-equipped households with two \$40.00 coupons per household.

The program is to be financed through auction of some of the analog spectrum released by the analog switch-off. Only households with "economic need" will qualify for the coupons.

Frequencies made available by this analog switch-off would not be reallocated to the broadcasting sector but will be made available on the basis of "flexible usage".

Flexibility in managed freed frequencies

In this framework, the FCC has to manage a contiguous block of 108 MHz in the 698-806 MHz bands. After reserving more than 20% of these frequencies in two blocks to security services as required by Congress, it began auctioning off the remaining blocks, with a first part between 2002 and 2005. The remaining blocks should be assigned before 2008. The spectrum auctioned can be used to provide any service using any technology. The U.S. is applying the principle of service and technology neutrality to this spectrum. Moreover, the way in which the spectrum is auctioned ensures that small businesses and rural operators get a fair share of the new resources.

At the same time, the FCC and other American sector authorities have been conducting a harmonization policy with their Canadian and Mexican neighbors aiming to define common frequency bands to create a harmonized area, in particular for using wireless communications for "Homeland Security".

Auctions Planned to Assign 3G Frequencies

The FCC is responsible for managing the civil radio spectrum, and government frequency resources are managed by the NTIA.

\$13.88 billion in bids received by the FCC at end 2006

In 1993, Congress authorized the FCC to replace the comparative selection and lottery procedures with auctions. In order to relaunch mobile activity. In August and September 2006, the FCC auctioned off 90 MHz in frequencies in the 1710-1755 MHz and 2110-2155 MHz bands, identified by the federal administration in 2002, for the development of next-generation mobile services.

From this auction, the FCC received \$13.88 billion from 104 operators, including the top three bidders: T Mobile, Verizon, and Spectrum Co (consortium of cable operators). The auction techniques are highly sophisticated, designed to promote technological innovation, rural services, access by small businesses, etc.

TV on Mobile Beginning in the United States

MediaFLO to be The progressive implementation of digital broadcasting between now

**launched by
Qualcomm and
Verizon in
2007**

and 2009 will allow the development of TV on mobile in the United States. The companies proposing this service will have to negotiate with local television stations city by city to obtain the right to use the frequencies purchased in the auctions which were made available from the digital dividend before the switch-off date of 2009.

Qualcomm is the main buyer of the first part of the frequencies auctioned off, and is beginning to develop its MediaFLO television-on-mobile service in partnership with Verizon.

The technology it uses is proprietary, but is still technically similar to DVB-H. It is in the 716-722 MHz band. Verizon plans to open the service in 2007.

In France, spectrum management involves a greater number of players. While ARCEP manages the frequencies of the electronic communications sector and the Conseil Supérieur de l'Audiovisuel (CSA) manages the frequencies of the broadcasting sector, a number of government bodies also have frequencies which they manage for their own uses, including the Ministry of Defense, the Ministry of the Interior and the Centre National d'Etudes Spatiales (CNES). The main mission of the National Frequencies Agency (Agence Nationale des Fréquences - ANFr) is to coordinate the management of all these authorities, establishing the national frequency band assignment table. It is directed by a board of directors composed of the various controlling authorities. ANFr also represents France at international bodies (both in Europe and worldwide) and defends the positions expressed by the controlling authorities. ANFr is a technical agency, and does not have the competence to truly define a French policy in terms of radio spectrum.

France is developing its policy for managing the future digital dividend. Consequently, it has created a strategic digital committee (Comité stratégique pour le numérique), which is chaired by the Prime Minister. This committee is responsible for organizing the transition from analog broadcasting to digital broadcasting and for making proposals regarding the digital dividend. Furthermore, radio spectrum has also become a key issue as European directives are being reexamined. The European Commission is currently promoting a major change, both political and technical, in how radio spectrum is managed, highlighting the concepts of service flexibility and technology neutrality..

The bill on the television of the future would halt analog broadcasting by November 30, 2011 at the latest and includes a launch plan for television on mobile with effective implementation at end 2007. However, this does not deal with the future organization of the management of radio spectrum in France. The United States had already established its position on the digital dividend in 1997, a full 12 years before the end of analog switch-off planned for 2009. French policy on management of the digital dividend needs to be developed so that France can influence European debates and anticipate future changes.

CONCLUSION

Digital is one of the keys for increasing revenue on new services.	<p>The U.S. experience on the electronic communications market highlights the important role of digitization, which has prompted an increase in consumption, particularly in the television market.</p> <p>The decline in voice revenue and increase in broadband deployment make access to content key, which will shape the future market and has repercussions for telecommunications operators.</p> <p>The success of DBS triggered a new investment strategy by cable networks which were the first to develop a Triple Play service package competing with the services of telecoms operators .</p>
Access to new content is strategic.	<p>While cable operators doubled their sales between 1996 and 2005, the telcos have run up against problems in accessing audiovisual content due to the constraints linked to royalties, franchising and TV programming providers.</p>
The US telecoms market is dominated by RBOC, and the broadband market still dominated by cable operators	<p>The change observed in the United States on traditional telecoms markets shows how the access market is dominated by the RBOC and ILECs (<i>Incumbent Local Exchange Carriers</i>) who are suffering from a decrease in fixed line voice revenues, and an increase in mobile subscribers, albeit with stagnating mobile ARPU. This situation is comparable with that of European countries.</p> <p>There is a definite difference on the broadband market, which is dominated in the United States by cable operators, whereas cable operators are weak in France.</p>
High TV ARPU	<p>Similarly, the structure of total ARPU (including broadcasting) is very different in the United States than in France, with a major share of the average communication budget of households dedicated to cable operators pay television services, around \$51 per month (the highest price which, according to certain players, can be as high as \$100) especially for sports programming.</p>
A common concern: the digital dividend	<p>On both sides of the Atlantic, we see a common concern with the digital dividend.</p> <p>In the United States, we've seen a political commitment to using scarce resources, with a significantly different organization of the regulation authorities, with the FCC having full charge of all commercial frequencies and applying service and technology neutrality to the new spectrum.</p>



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